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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,448	06/02/2005	Rob A. Beuker	348162-982480	2666

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EXAMINER	
MA, CALVIN	
ART UNIT	PAPER NUMBER
2629	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,448	BEUKER ET AL.	
	Examiner	Art Unit	
	CALVIN C. MA	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/19/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gindele et al. (USP 6549678) in view of Prentice (US Pub 2002/0159631).

As to claim 1, Gindele discloses a method for improving the perceived resolution of a color matrix display (i.e. the computer display 30 shown in figure 1) with at least one pixel, comprising the steps of

subdividing an incident color channel signal to said pixel into a first and second signal component (i.e. the pedestial splitter 30a takes on the red channel and split it into Rtxt and Rped signal) (see Fig. 2, Col. 3, Lines 45-67),

applying a gain factor to one of said signal components, (i.e. the slope calculator 37 applies the gains which is a scalar constant based on the color's texture displacement in the overall image which is a function of there overall brightness contribution since the color placement of the color channel are factored into the calculated mid-tone gain (see Fig. 2, Col. 5, Lines 5-55), and

subsequently recombining said first and second signal components into an exiting modified color channel signal (39) (i.e. the texture signal and the pedestal signal are recombined at the adder which exit the system as transformed color image which could be display on the computer screen) (see Fig. 1, 2, Col. 3, Lines 23-44).

However Gindele does not explicitly teach the gain factor being based upon the incident color channel signal's contribution to total luminance of the display, Prentice teaches the gain factor being based upon the incident color channel signal's contribution to total luminance of the display (i.e. Prentice teaches a color specific gain factor control based on the luminance channel which is the contribution of the overall luminance of the display when extracted from the image data as a whole, in this way the filtering system of Prentice is able to factor in the contribution for each of the color channel in term of luminance when applying color specific filtering) (see Prentice, Fig. 2, 3, [0016-0018]).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have utilized the color specific luminance based gain factor filtering image processing design of Prentice in the overall display system of Gindele in order to allow the user better display result for outdoor photographic display applications such as digital camera viewing (see Prentice [0022]).

As to claim 7, see claim 1 above, claim 7 differs from claim 1 only in that it is a device claim rather than a method claim and is analyzed to have the same limiting scope and is therefore rejected for the same reason (i.e. the computer display 30 is a color matrix display device) (see Gindele, Fig. 1).

As to claim 12, see claims 1 and 7 above, claim 12 is analyzed to differ from claim 7 only in the additional limitation of "a plurality of pixels controlled by applied color channel signals" which is taught by Gindele in the form of the computer monitor 30 which has plurality of displaying pixels which are fed the color signal from the display processing unit of the computer 20 after being process by the image processing system. In this way claim 12 still read on the prior art Gindele.

As to claim 2, Gindele teaches a method according to claim 1, wherein said first and second components are a low-pass component and a high-pass component, respectively (i.e. even though Gindele does not explicitly define the signal nature of the texture and the pedestal signals, it is shown that the texture signal is of high-pass signal type, since it relies on a high-pass filter for the main component which is modified by the avoidance signal circuitry 80, where a low pass filter in only applied for specific artifact avoidance which does not effect to overall nature of the signal in general, while the pedestal is said to be a smooth signal which results from the original signal subtracting the texture signal which by definition result in a low-pass signal of the original signal) (see Fig. 2, 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43).

As to claim 3, see claim 2 above, Gindele teaches the first and second signal components are respectively a low-pass component and a high-pass components(see Fig. 2, 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43), and

applying a gain factor to one of said signal components includes applying the gain factor only to said high-pass component (i.e. the mid-tone gain factor scalar component is only applied to the texture signal which is the high-pass component) (see Fig. 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43).

As to claim 4, Gindele teaches a method according to claim 2, wherein said low-pass component is realized by means of a low-pass filter, and said high-pass component is realized by means of a high-pass filter, said low-pass and high-pass filters being complementary (i.e. since the texture signal is formed which a high-pass filter and the pedestal signal is formed by having the original signal subtracting the texture signal, the pedestal signal has the equivalent low pass filter applied on it since the subtraction of the high-pass signal naturally result in the low pass signal, and in this when the to filter are complementary) (see Fig. 2, 3, Col. 4, Lines 10-55, Col. 6, Lines 1-43).

As to claim 5, Gindele teaches a method according to claim 1, further comprising the step of:

determining the gain factor for the one of said signal components (i.e. the red color channel applied to 30a) based upon the incident color channel signal's contribution to total luminance of the display, the gain factor being inversely proportional to the contribution of the color channel to the total luminance of the color matrix display (i.e. the mid-tone modifier is inverse proportional to the overall brightness since the brighter

the color components is on color space the Euclidian distance is in inverse relationship with its mid-tone) (see Col. 5, Lines 20-35).

As to claim 6, Gindele teaches a method according to claim 1, further comprising the step of:

transmitting said exiting, modified color channel signal to a delay and up or downsampling block in order to provide the modified color channel signal with a suitable delay and scaling (i.e. since Gindele teaches the computer system 20 being able to display the image that is corrected on the display 30 the computer display control system must create the needed delay and scaling to fit the image data into the video buffer and thereby display it correctly on the screen 30) (see Fig. 1, Col. 3, Lines 5-35).

As to claim 8, Gindele teaches a color matrix display device as in claim 7, wherein the control unit determines the gain factor based upon the incident color channel signal's contribution to total luminance of the display (i.e. the slope calculator 37 applies the gains which is a scalar constant based on the color's texture displacement in the overall image which is a function of there overall brightness contribution since the color placement of the color channel are factored into the calculated mid-tone gain (see Fig. 2, Col. 5, Lines 5-55).

As to claim 9, Gindele teaches a method according to claim 1, wherein the step of subdividing includes subdividing each of the separate color channel signals for an

image into a first and second signal component (i.e. as seen in figure 2 all three of the red, green, and blue channels are subdivided).

As to claim 10, Gindele teaches a method according to claim 1,

wherein the step of subdividing includes subdividing each of the separate color channel signals for an image into a first and second signal component (i.e. as seen in figure 2 all three of the red, green, and blue channels are subdivided via 30a, 30b, and 30c), and

wherein applying a gain factor includes applying a separate gain factor to one of the signal components of each separate color channel signal (i.e. the signals RGB are separately processed circuitries 33 and 37, where the mid-tone gain m is applied to each of the separate channel individually) (see Fig. 2, Col. 5, Lines 10-40) that is inversely proportional to the contribution of said separate color channel signal to the total luminance of the color matrix display (i.e. the mid-tone modifier is inverse proportional to the overall brightness since the brighter the color components is on color space the Euclidian distance is in inverse relationship with its mid-tone) (see Col. 5, Lines 20-35).

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As to claim 11, Gindele teaches a method according to claim 1, wherein the step of subdividing include subdividing a number 3 (i.e. N=3 for the three channels RGB) of different color channel signal, and

the step of applying a gain factor includes applying a separate gain factor, to one of the signal components for each color channel signal, that is about equal to the value of 1/3 multiplied by the reciprocal contribution of the color channel signal to the total luminance of the color matrix display (i.e. the mid-tone modifier for each of the channel R, G, B are inverse proportional to the overall brightness since the brighter the color components is on color space the Euclidian distance is in inverse relationship with its mid-tone and since the mid-tone factor is a part of the three color combined brightness total, the gain is about 1/3 of the total value of the entire image signal) (see Col. 5, Lines 20-35).

3. Claims 13-16 are rejected 35 U.S.C. 103(a) as being obvious over Gindele et al in view of Prentice as applied to claims 1 and 12, and further in view of Hunter et al. (US Patent: 7,071,978).

As to claims 13 and 15, Gindele teaches the method and device of claim 1 and 12, but does not explicitly teaches applying a gain factor includes applying a gain factor that removes a visible aliasing term from the incident color channel signal, however Gindele does teach the possibility of texture amplifier being modified in manner by those skilled in the art may desire.

Hunter teaches wherein applying a gain factor includes applying a gain factor that removes a visible aliasing term from the incident color channel signal (i.e. Hunter

teaches the usage of the gain application method will remove color aliasing in the image) (see Hunter Col. 3, Lines 33-40).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the aliasing removal technique of Hunter in addition to the texture modifying circuitry of Gindele in order to further enhance the image processing capability of Gindele with anti-aliasing capabilities (see Hunter Col. 3, Lines 30-45).

As to claims 14 and 16, Hunter teaches wherein applying a gain factor includes applying a gain factor that sets constants of a visible aliasing term for the incident color channel signal to zero to remove a visible aliasing term from the incident color channel signal (i.e. Hunter teaches the usage of the gain application method will remove color aliasing in the image) (see Hunter, Col. 3, Lines 33-40).

Response to Arguments

4. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Calvin Ma whose telephone number is (571)270-1713. The examiner can normally be reached on Monday - Friday 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571)272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma

January 14, 2010

/QUAN-ZHEN WANG/
Supervisory Patent Examiner, Art Unit 2629

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